

PATENT SPECIFICATION
DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in Window Frames and Sash Assemblies

I, ARMAND AILLAUD, of 63, Rue du Docteur Perrin, Marseille, France, of French Nationality, do hereby declare the invention, for which I pray that a patent may be granted to

5 me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to window frame and sash assemblies, its object being to provide 10 an improved construction which is particularly suitable for manufacture from synthetic resinous plastics, for example by known processes of extrusion.

According to the present invention, a window frame and sash assembly comprises in combination:—(i) a hollow rectangular sash having marginal recesses to receive a glazing pane and adjacent each recess a longitudinal marginal groove receiving frictionally removable pane-securing inserts, said sash having a lip extending from the inwardly-facing edge of its upper and lower cross members and of its non-hinged side member, and resilient sealing elements positioned in the recesses defined by said lips to engage the frame, and (ii) a hollow rectangular frame having on the inwardly-facing surface and on the outwardly-facing surface of its lower horizontal cross-piece longitudinal marginal grooves respectively receiving frictionally inner and outer water-deflecting inserts, said frame having an upstanding lip extending from the innermost outwardly-facing edge of its upper and lower cross members and of its two side members to define recesses in which are disposed resilient sealing elements positioned to engage the sash.

In a preferred embodiment, the frame has 40 water drainage apertures forming a communication between its interior and its inwardly-facing, outwardly-facing and upwardly-facing surfaces.

In order that the nature of the invention may be readily ascertained, an embodiment of

window sash and frame construction in accordance therewith is hereinafter particularly described with reference to the accompanying drawing, wherein:—

Fig. 1 is a vertical section taken through the lower end of an assembly of double-glazed sash and frame in a plane at right angles to the plane of the glass. 45

Fig. 2 is a horizontal section taken, at the hinge side, through the same assembly of double-glazed sash and frame at right angles to the plane of the glass. 50

The window frame is rectangular and has a lower cross member or sill 1, an upper cross member (not illustrated) of similar cross-section, and two upright side members 2, only the hinged one of which is illustrated (see fig. 2). These parts are preferably made as simple one-piece mouldings of, for example, synthetic resinous plastic material, which may conveniently be produced as extrusions. 55

The lower cross-member 1 comprises a first hollow rectangular channel cavity portion 3 forming a longitudinal-tenon which is set into structural material 4 surrounding the window frame, e.g. concrete, or a metal or wood outer frame. An adjacent and somewhat larger hollow rectangular channel cavity portion 5, forming the frame proper, has a first external water draining aperture 6 for the passage outwardly of any water which may otherwise tend to collect in the portion 5 by entering through a second water draining aperture 7 in its upper wall or through a third water draining cavity 9 in its internally-facing wall. 60

In the body of the lower cross-member 1 there is formed a longitudinal marginal external groove 10 in which there is frictionally engaged a bead 11 of a water-deflecting insert 12 which serves to deflect, away from the structure 4, any water passing externally down the window or emerging from the draining aperture 6. Said body includes also a longitudinal marginal internal groove 13 in which

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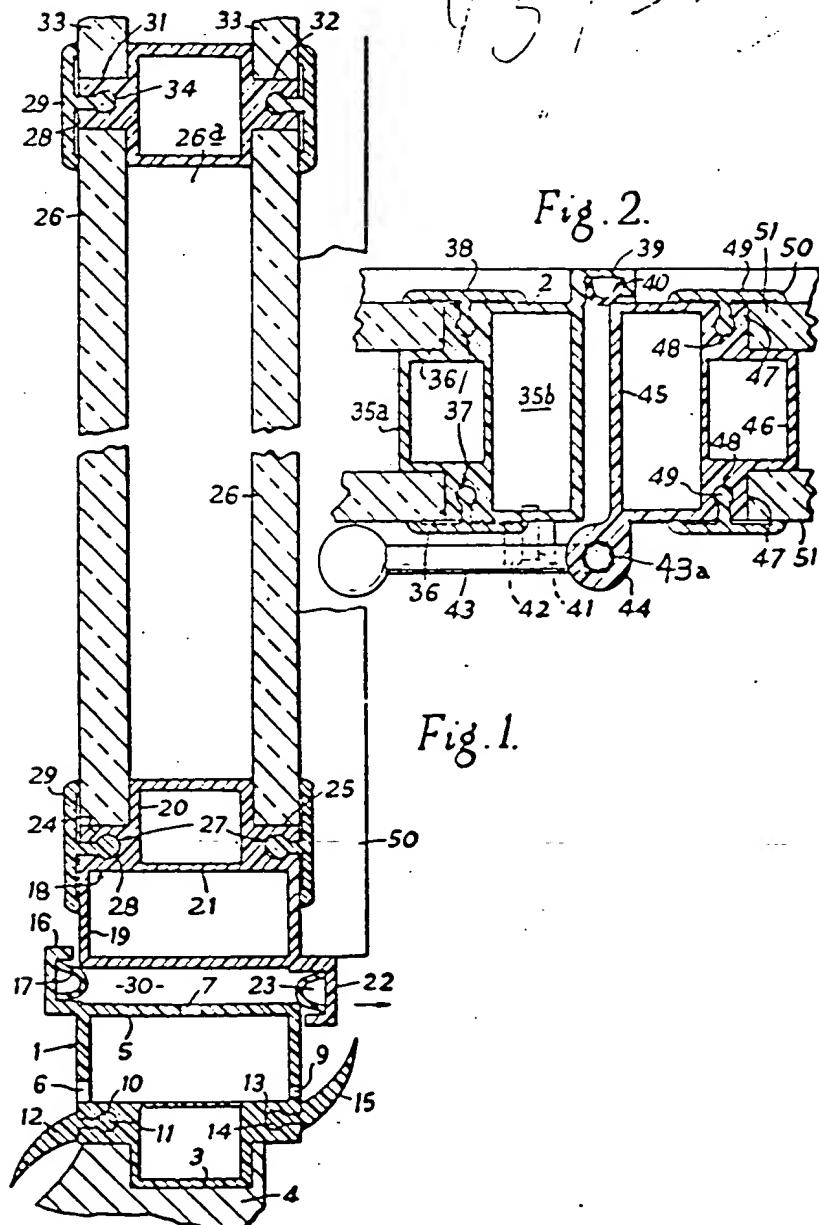
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949997 COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of
the Original on a reduced scale

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there is frictionally engaged the bead 14 of an internal water-deflecting insert 15 which is upwardly turned so as to be capable of collecting any water which may form as condensation 5 on the internal surface of the window and thereafter run down onto the frame. The collected water passes through the aperture 9 and out of the aperture 6.

On the upper part of the portion 5, at its 10 edge facing the exterior of the window, there is provided a projecting external lip 16 within which is seated a resilient longitudinal sealing element 17. A similar arrangement of external lip and sealing element is provided all 15 round the frame (see lip 39 and element 40 of fig. 2).

Referring now to the window there is provided a rectangular sash which has a hollow lower horizontal cross-member 18 comprising 20 a first portion 19 and a second portion 20 with a common wall 21. On the lower internally-facing edge of the portion 19 there is provided a lip 22 within which is seated a resilient longitudinal sealing element 23. A 25 similar lip and sealing element are provided along the top cross member of the sash, and also along its upright side member remote from the hinge. The upper portion 20 has two flanges 24, 25 each of which defines a 30 recess to receive panes 26 of window glass enclosing an air-space 26a for better heat insulation. In each flange there is provided a longitudinal marginal groove 27 in which is frictionally engaged a bead 28 of a resilient 35 glass-securing glazing insert 29 one arm of which overlies the edge of the glass pane.

In the position shown in fig. 1, the window 40 is shut and the sash and frame are in a position in which the sealing element 23 of the sash abuts against the portion 5 of the frame, and the sealing element 17 of the frame abuts against the portion 19 of the sash, thereby giving a double-sealing action at the upper and lower ends and at its side remote from the hinges. This arrangement provides an 45 air-space 30 which is sealed except for an aperture 7.

The window incorporates one or more additional intermediate horizontal pane-supporting 50 bars in the form of hollow rectangular elements having on opposite walls respective flanges 31, 32. Panes of glass 26 and 33 are seated by their edges against the rectangular elements and flanges. In each flange there is 55 formed a longitudinal groove 34 in which is frictionally engaged the bead 28 of a resilient glazing insert 29.

Referring now to fig. 2, there is shown those parts of the frame and sash which are hinged 60 one to the other.

The upright 2 of the frame has a first hollow rectangular channel cavity portion 35a and a second such portion 35b integrally formed therewith. The portion 35a has two flanges 65 36 each of which includes a longitudinal mar-

ginal groove 37 receiving the bead of a glazing member 38 serving to hold the panes of glass 26 in a recess defined by the respective flanges. On the portion 35b, at its externally-facing corner there is a lip 39 receiving a resilient sealing element 40. On the internally-facing wall of the portion 35b there is a screw 41 serving to secure a boss 42 which, in the position of the parts shown in fig. 2, forms a stop preventing vertically downwards shifting of a rod 43 extending horizontally from a hinge pin 43a which is engaged vertically through a knuckle 44 of the sash, and also through a knuckle (not shown) on the frame upright 2 at a higher point. If the rod 43 is swung out about the axis of the hinge pin 43a, it then moves clear of the stop 42 and can be shifted vertically to withdraw the hinge pin 43a from its associated knuckles and permit the sash assembly to be disconnected from the frame. The knuckle 44 is formed on a hollow rectangular portion 45 integrally formed with another hollow rectangular portion 46 of an upright channel cavity member of the sash. The portion 46 has flanges 47 in which are formed longitudinal marginal grooves 48 receiving frictionally beads 49 of glazing elements 50 serving to retain panes 51 of glass in recesses defined by said flanges. In the position shown, the window is closed and the front outer corner of portion 45 of the sash abuts against the sealing element 40 in air-tight engagement.

WHAT I CLAIM IS:—

1. A window frame and sash assembly comprising, in combination: (i) a hollow rectangular sash having marginal recesses to receive a glazing pane and adjacent each recess a longitudinal marginal groove receiving frictionally removable pane-securing inserts, said sash having a lip extending from the inwardly-facing edges of its upper and lower cross members and of its non-hinged side member, resilient sealing elements positioned in the recesses defined by said lips to engage a frame, and (ii) a hollow rectangular frame having on the inwardly-facing surface and on the outwardly-facing surface of its lower horizontal cross-piece longitudinal marginal grooves respectively receiving frictionally inner and outer water-deflecting inserts, said frame having an upstanding lip extending from the innermost outwardly-facing edge of its upper and lower cross members and of its two side members to define recesses in which are disposed resilient sealing elements positioned to engage the sash.

2. A window frame and sash assembly, as claimed in claim 1, wherein the frame has water drainage apertures forming a communication between its interior and its inwardly-facing, outwardly-facing, and upwardly-facing surfaces.

3. The window frame and sash assembly

particularly described herein with reference
to the figures of the accompanying drawing.

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